Rwanda: a case study on wetland governance and its impacts on urban city planning

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Ramsar Workshop of the STRP National Focal Points of Africa & Other Wetland Experts
Emperors Palace, Johannesburg, South Africa,
30 November – 2 December 2010
Rwanda

Area: 26.338 sq km
Average population density: 397 people per sq km

People per area of arable land: 500 people per sq km
Major Problems

Pressures on land, water, flora and fauna and other non-renewable resources.

This is most evident in land degradation, soil erosion, decline in soil fertility, deforestation, wetland degradation, loss of biodiversity and pollution.
Waste from economic activities such as near this wetland this garage in Gastata can result in environmental pollution.

Solid waste is often disposed of in unsuitable areas such as in this wetland in Gastata.
High population density and land scarcity has forced people to settle right along the ecologically fragile river banks leading to soil erosion and wetland degradation.
Rwanda is divided into two major drainage basins: the Nile to the east covering 67 per cent and delivering 90 per cent of the national waters and the Congo to the west which covers 33 per cent and handles all national waters.
Wetlands

The country’s hydrological network includes numerous lakes and rivers and its associated wetlands. An inventory of marshlands in Rwanda conducted in 2008 identified shows 860 marshlands, covering a total surface of 278,536 ha, which corresponds to 10.6 per cent of the country surface, 101 lakes covering 149,487 ha, and 861 rivers totaling 6,462 km in length.
Inventory

**860 Swamps** (278 536 ha)
- 10.5% of Rwanda area
- 41% Covered by Natural Vegetation
- 53% Covered by Fields (148 344 ha)
- 6% Fallows (Jachères)

**101 Lakes** – 149 487 ha

**861 Rivers** – 6 462 km
Wetlands Management Modalities

– **38 Swamps** – 56,120 ha proposed for full Protection (20%)

– **475 Swamps** – 206,732 ha proposed for exploitation under condition (74%) including:
  • 182 Swamps - 145,768 ha which are shared by several Districts
  • 365 Cultivated Swamps of > 100 ha – Total 184,032 ha with 130,873 ha cultivated

– **347 Swamps** – 15,689 ha proposed for exploitation under a basic EIA (6%)
Wetlands Governance

• Set legal Instruments for Rwanda Marshlands Sustainable Management

• Create Capacity Building Tools in order to manage Rwanda Marshlands in Sustainable Manner

• Elaborate Technical Tools for Marshlands and Watershed Management

Protection of river banks is essential for the integrity of the water and wetlands resources
Rwanda Wetlands Bill

The Bill is a legal instrument:

- To improve wetlands (marshlands) governance in Rwanda
- To strengthen the legal status of marshlands and to determine the conditions of their management and their use, in a sustainable manner.

Content:

- 8 Chapters and 69 Articles covering:
  - Administrative Structure Principles
Focus on REMA’s Biodiversity Information System

Objective:
To design and setup a Biodiversity Information System Platform for Rwanda Wetlands that will be provided:

• Real time data collection (PCs Internet, Phone, Cellular Phone, PDA Smartphone, Local Applications);
• A two way communication with field environmental data collectors;
• Automatic generation of trend charts, interactive maps and consolidated environmental data tables;
• Analytical tools and ability to export environmental data;
• Real time compilation of environmental information in the field;
• Automatics and rapid evaluation of environmental indicators.
Wetlands governance Impact on the conceptual view of the community centre approach to developing the proposed Kigali City Master Plan

The current laws governing settlement planning date as far back as 1981 (Loi sur l’aménagement urbain et du territoire loi No 4/81 of 29th January 1981).

Kigali developed a conceptual master plan for the next 50 years. In this master plan, the proposed approach to development is the community centre approach in order to share services to a greater population in an environmentally sustainable way. It also includes innovative technologies such as a collective biogas unit which can generate energy from waste.

In the case the KCMP, it is taking into consideration contemporary wetlands governance tools.
In this regard, the EDPRS prioritizes the planning and development of improved rural and urban human settlement consistent with the contemplated sustainable land use and environmental protection scheme.

This will allow the issues of land use and environmental health to be addressed.
The Urban Sustainability

In the environmental crisis facing the planet, it is critical to ensure that development in Kigali is guided by the key principles of sustainability.

However, in case of Rwanda, addressing the economic and social issues is as critical as attending to the environmental issues. As such the Master Plan has been developed in line with the ‘triple bottom line’ approach.

An urban sustainability framework has been developed and lists down the key environmental, social and economic issues, and presents key performance indicators and recommendations which need to be achieved to address these critical issues.
Role of the Urban Sustainability Framework in City Development and Management
Nyarugenge District - Location and Connectivity
Based on a visioning process and the framework described above, as well as the broad vision suggested for Nyarugenge District in the Development Plan for the City of Kigali, the vision proposed for Nyarugenge District is the following:

‘Kigali’s Revitalised Central Business District and Vibrant New Growth Area’
Goals

• Revival of the Existing Central Business District and Creation of Well Distributed District Level Urban Nodes

• Renewal of Existing Urban Areas

• Development of Comprehensive New Townships

• Creation of Alluring Recreational Features and Tourist Attractions

• Transit Oriented Development supported by an Efficient and Cost-effective Transportation System

• Provision of Integrated, Timely, Cost Effective and Eco-friendly Infrastructure Facilities

• Conservation, Revitalisation and Management of the Unique and Rich Natural Features
Goal:
Creation of Alluring Recreational Features and Tourist Attractions

Strategy.
Optimise the use of natural features, such as wetlands, steep slopes and forests around the townships to create a variety of recreational venues.

Recommendation:
Develop linear parks along wetlands and natural drains in all townships and residential settlements, which not only offer integrated recreational open spaces, but also double up as wetland conservation and surface water management features.
Goal: Conservation, Revitalisation and Management of the Unique and Rich Natural Features.

Objective: To ensure protection of all wetland systems.

Strategies:
1 - Stipulate upstream measures to control the quantity and quality of discharge into the wetlands.
2 - Mandate downstream measures to ensure wetland conservation.

Recommendations:
1 - Provide a 10m - 40m buffer to all natural drainage lines.
2 - Ensure measures to manage the drainage run-off quality.
3 - Clear all existing developments within the wetland boundaries.
Opportunities Plan

Flat areas along wetlands available for township development.

Existing public facilities in the urban areas can be reused.

Figure 2.11: Nyarugenge District - Opportunities Plan
Source: Surbana
Constraints Plan

- Existing dense informal settlements difficult to redevelop.
- Undevelopable areas under steep slopes.
- Areas under wetlands need to be conserved.

Figure 2.12: Nyanugenge District - Constraints Plan
Source: Surbana
For the sake of recreation and tourism the land area is broadly divided into 4 zones – the urban attractions, the urban parks, Forest/Mountains Ridges Parks and the wetland Parks.

An extensive green connector network in the form of green strips, bridges, green fingers etc. links all the parks and green areas across the District and ensures seamless pedestrian connectivity.
Kimisagara Sector - Concept for Green Link in Kimisagara.
Kimisagara Sector: Illustration of the Development in Kimisagara as part of the Gitega-Kimisagara Green Link.
What technical and scientific assistance Ramsar STRP and Partners can provide

Proposed Implementation Mechanism
• Implementation of Zoning Plan
• Capital Improvement Plan (CIP)
• Special Projects

Proposed follow up measures
• Establishment of Legal Framework
• Monitoring and Evaluation:
• Establishment of Planning Manual
• Development of Special Control Guidelines
  • Special control guidelines are required to ensure quality development within the City, to ensure sustainability and to enhance local culture and identity.
  • Wetlands monitoring and evaluation guidelines is recommended, in addition to the Master Plan and Zoning Guidelines
  • Waste management Guidelines
  • Pollution control guidelines

Capacity Building
GIS and wetlands monitoring

Sub regions: Develop a compendium
Proposition

Prepare a detailed compendium on existing policy, legal and regulatory wetlands and urban planning frameworks in Africa.

The work will include feedback on the application of Strategic Environment Assessments (SEAs) and linkages to wetlands and urban planning assessments.
Analyze existing environmental policy, legal and regulatory frameworks with a focus on successful practices in wetlands and urban planning.

Propose recommendations to bridge identified gaps and identify harmonization principles to link up national initiatives to regional or sub-regional frameworks.

Conduct capacity needs assessment for the effective integration of SEAs in regional policy and legislative frameworks and harmonization with national policies, plans and programmes using South Africa and a reference case. The assessment should focus on high environmental impact policies, plans and strategies/programmes such as those targeting economic development, poverty reduction and productive sectors as potential users of SEAs.
Prepare a detailed report, including a facts-based stocktaking analysis and practical recommendations on how to enhance harmonization of environmental policies, legislative and regulatory frameworks and promote the integration of strategic environment assessments with the wetlands and urban planning as an entry point.

Facilitate the Validation Workshop of findings and recommendations and incorporate key stakeholder comments if any, into a final version of the compendium that will be considered for adoption by the COP and other key stakeholders.
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